

NASA's Astromaterials Database: Enabling Research Through Increased Access to Sample Data, Metadata and Imagery  
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AGU IN027 Linking physical objects to cyberinfrastructure

The Astromaterials Acquisition & Curation Office at NASA's Johnson Space Center (JSC) is the designated facility for curating all of NASA's extraterrestrial samples. Today, the suite of collections includes the lunar samples from the Apollo missions, cosmic dust particles falling into the Earth's atmosphere, meteorites collected in Antarctica, comet and interstellar dust particles from the Stardust mission, asteroid particles from Japan's Hayabusa mission, solar wind atoms collected during the Genesis mission, and space-exposed hardware from several missions. To support planetary science research on these samples, JSC's Astromaterials Curation Office hosts NASA's Astromaterials Curation digital repository and data access portal [<http://curator.jsc.nasa.gov/>], providing descriptions of the missions and collections, and critical information about each individual sample. Our office is designing and implementing several informatics initiatives to better serve the planetary research community. First, we are re-hosting the basic database framework by consolidating legacy databases for individual collections and providing a uniform access point for information (descriptions, imagery, classification) on all of our samples. Second, we continue to upgrade and host digital compendia that summarize and highlight published findings on the samples (e.g., lunar samples, meteorites from Mars). We host high resolution imagery of samples as it becomes available, including newly scanned images of historical prints from the Apollo missions. Finally we are creating plans to collect and provide new data, including 3D imagery, point cloud data, micro CT data, and external links to other data sets on selected samples. Together, these individual efforts will provide unprecedented digital access to NASA's Astromaterials, enabling preservation of the samples through more specific and targeted requests, and supporting new planetary science research and collaborations on the samples.